

ART. V.—*On the WEIR MALLEÈ, a water-yielding Tree, the BULRUSH, and PORCUPINE GRASS of Australia.* BY JOHN CAIRNS, ESQ.

[Read before the Institute, 16th June, 1858.]

IN compliance with the wish expressed at our last meeting, I have endeavoured to embody, in as few words as possible, the remarks I made on that occasion, on the subject of the Weir Malleè, the bulrush, and porcupine grass of Australia; and I would beg at once to acknowledge the great kindness of Dr. Mueller, to whom I am indebted for *all* the botanical descriptions which follow.

The water-yielding Malleè, called the Weir Malleè, was known to the natives long before the arrival of the whites, who, however, in their explorations, have often sustained life by its use, and it is mentioned particularly by Mr. Eyre, in his work on Australian exploration.

The water-yielding Eucalyptus is one of the many species which pass under the name of Eucalyptus Dumosa, extending from the desert tributaries of the Murray, westward, as far as Swan River, constituting those almost impenetrable scrubs called Malleè. Hitherto, it is by no means proved that only one solitary species of Eucalyptus yields water, and the subject is well worthy of further investigation. Any species of Eucalyptus inhabiting the scrub, not attaining the height of a tree, but of a low scrubby growth, is usually comprised under this name, thus rendering it difficult to identify with botanical precision the species which yields water.

Dr. Mueller informs me that in the tropics of Australia, the Malleè Eucalypti have not yet been found, whilst in Central Australia only two species of Eucalyptus of shrubby growth exist, and these differing from those met with in the South.

The existence of the Weir Malleè with its invaluable supply of water, is universally known by old bushmen, though I have met with some who never saw it to know it positively, not having taken the trouble to find out from the blacks which really is the tree. It is not met with in the dense scrub, but only on the edges of the plains with which the scrub is dotted, sometimes only of small extent, whilst on

the contrary some present a vast open space of considerable width. During a recent visit to the Murray, where I had often heard of this useful shrub, my friend, Mr. Peter Beveridge, rode with me into the Mallee, accompanied by one of his native stockmen, who, on our approaching the edge of one of the plains, at once pointed out the tree. It grows upwards of twenty feet high, and scarcely differs in appearance from those around to the eye of a stranger, but easily to be detected on the brownish tinge of its leaves being pointed out. Our black immediately proceeded to cut a yam stick about five or six feet long, which he pointed with his tomahawk, and then, tracing the roots by a slight crack discernible on the surface of the ground, he dug underneath it till obtaining space enough for the point of his stick, he pushed it under and then prized up the root as far as he could. Going further from the tree he repeated the operation until he had, perhaps, fifteen or twenty feet of the root laid bare. He now broke up the roots into lengths of three to four feet, and, stripping off the bark from the lower end of each piece, he reared them against the tree, leaving their liquid contents to drop into a pannikin. On holding a piece of root horizontally no water is to be seen, but the moment it is placed in an upright position a moisture comes over the peeled part, until the pores fill with water which drops rapidly.

The natives when travelling in search of water, on finding the tree, usually cut off a large piece of the bark to serve as a dish, which they place at the foot of the tree, leaving the broken roots to drain into it, whilst they smoke a pipe or light a fire. The root, on being broken, presents to view innumerable minute pores, through which the water exudes most copiously; from a pint to a quart of pure water being procurable from a root of twenty to thirty feet long. Some roots which we carried with us to the home-station, gave out a little moisture the next morning, but the weather being excessively warm, rapid evaporation had no doubt taken place. The water which I now exhibit, is just as it drained from the root, in the month of March last, into a pannikin, the bottle never having yet been opened, and the results of the chemical analysis of the contents of a second bottle will no doubt be laid before us by Dr. Macadam, who kindly took charge of the same, with this view, at our last meeting.

Mr. Peter Beveridge ascertained that water was procured from the roots of the Beefwood tree, a small tree described by Dr. Mueller, in the 14th volume of Professor De Can-

dolle's Prodrômus, as the "Hakea Stricta," but the quantity produced therefrom is so small as to render it, comparatively speaking, worthless; in fact, the root must be sucked to obtain any moisture at all, which, as already described, is not the case with the "Weir Malleè."

Many explorers have been much surprised to find natives existing where there was apparently no water to be found, either in roots or otherwise; but their surprise has been changed into admiration at another wonderful provision of nature, in the "murn," so called by the natives, but "malleè oak," by the whites. This tree is very like the "she oak," but with bark less rough and more silvery in color. The wood is very hard, like lancewood, and capable of taking a fine polish. When the trunk attains a diameter of about six inches, it becomes pipy, thus forming a natural reservoir, into which the rains of the wet season are collected—the branches of the tree, which join at the top of the stem, acting as conducting pipes. The narrow aperture prevents much evaporation, and the natives know how to obtain water here, where an inexperienced traveller would never dream of searching for it. To procure this water, the native ties a bunch of grass to the end of his spear, and then climbing the tree, dips his primitive piston rod—if I may so call it—into this singular well. Drawing it up again, he squeezes the water from the grass into his bark dish, and thus proceeds until he obtains sufficient for his present requirements.

At our last meeting, Mr. Blandowski made some very interesting remarks, throwing considerable light on the subject of the nature of the soil on which the water-yielding malleè is generally found, and had I not been much pressed for time, I should have taken the liberty to apply to him for a few particulars on that point, which would have been a valuable addition to this paper.

The kumpung, or bulrush, which I exhibit, was brought before the notice of this Institute some time ago, by Mr. Blandowski, and I merely call attention to it under an impression that it might be advantageously brought into use as an article of export, capable of being manufactured at home into fabrics, where strength of material is required. It grows in considerable quantities in vast beds, extending over miles of country, and much of it being on the banks of the Murray, its shipment would be easy.

Mr. Peter Beveridge informs me that the "kumpung springs up from the root, *through the water*, about the end of

August, or as soon as the weather becomes slightly warm. When about a foot in length above the water, the natives pull it up and eat it for food in an uncooked state. In flavour it is very insipid, but extremely satisfying, and in this state is termed by the natives "joutey." It is full grown, or nearly so, by the time the waters recede, and remains green until the frosts come round, when it becomes quite brown, and, if not destroyed by fire, continues so until the young shoots spring up the following season; and so it goes on from year to year, until it becomes so thick as to be impervious to the sun, thus rendering the ground quite swampy and impassable for stock, therefore useless or worse than that." In the summer the natives dig up the roots, which they either roast or boil, and after masticating it and obtaining all the starch therefrom, they retain the stringy, fibrous parts in lumps, which the lubras carry about with them in their nets or bags, like careful housewives, until such be required for making strings or threads, which they afterwards net into bags, girdles, and other useful articles. The nets used for catching wild ducks, of which Mr. Blandowski gave us so interesting a description at the last meeting, must be of considerable size and strength, which convinces me that this is an article of commerce well worthy the attention of exporters.

Dr. Mueller describes it as rather remarkable that this particular kind of Australian bulrush should have proved identical with the species found in Switzerland, the "*typha shuttleworthi*," and consequently its utility, as an article capable of manufacture, may be easily proved in Europe. There are only two species found in Australia, but this particular variety has been found all over this vast continent, and used by many explorers as an article of food, on account of the starch it contains. The seed, consisting of a mass of soft down—called sometimes the "Murray down"—is very useful for stuffing mattresses. The coolness of this material admirably adapts it for this purpose in a hot climate.

The needle, or "porcupine grass," exhibited on this occasion, which has so very well been called by explorers "*Spinifex*," on account of its forming such thorny barriers to travellers in the Australian deserts, does not, Dr. Mueller informs me, belong to the particular genus described by Linnæus under that name, but is the "*triodia irritans*," and he states, on the authority of Mr. Gregory, that it is generally absent in the otherwise similar desert scrubs of Western Australia, although like species are encountered in Northern Australia.